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PubMed☐ 1: Mol Microbiol 1994 Sep;13(6):1093-100[Related Articles, Books, LinkOut](#)**Anthrax toxin lethal factor contains a zinc metalloprotease consensus sequence which is required for lethal toxin activity.****Klimpel KR, Arora N, Leppla SH.**PubMed
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Comparison of the anthrax toxin lethal factor (LF) amino acid sequence with sequences in the Swiss protein database revealed short regions of similarity with the consensus zinc-binding site, HEXXH, that is characteristic of metalloproteases. Several protease inhibitors, including bestatin and captopril, prevented intoxication of macrophages by lethal toxin. LF was fully inactivated by site-directed mutagenesis that substituted Ala for either of the residues (H-686 and H-690) implicated in zinc binding. Similarly, LF was inactivated by substitution of Cys for E-687, which is thought to be an essential part of the catalytic site. In contrast, replacement of E-720 and E-721 with Ala had no effect on LF activity. LF bound ⁶⁵Zn both in solution and on protein blots. The ⁶⁵Zn binding was reduced for several of the LF mutants. These data suggest that anthrax toxin LF is a zinc metalloprotease, the catalytic function of which is responsible for the lethal activity observed in cultured cells and in animals.

PMID: 7854123 [PubMed - indexed for MEDLINE]

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